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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/160,991	09/25/1998	TZYH-CHYANG CHERNG		6990

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EXAMINER

PAYER, HWEI SIU CHOU

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/160,991

Applicant(s)

CHERNG ET AL.

Examiner

Hwei-Siu C. Payer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15,25,26,31 and 38-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-15,25,26,31 and 38-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Detailed Action

The amendment filed on August 14, 2006 has been entered.

Claims Rejection - 35 U.S.C. 103(a)

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-7, 10, 12, 13, 14, 31 and 38-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Maybon (U.S. Patent No. 5,580,472).

Baker discloses a method for manufacturing a cutting die (see Abstract), the cutting die including a cylindrical die body (10) and a cutting blade (14/22/23, see Figs.6-8) formed in a pattern (24/25, see column 4, lines 65-67) and integral with the die body (10) and extending outwardly from the die body (10).

Baker's cutting die is formed by depositing a blade material (12) having a hardness greater than that of the die body material (10) by use of a heat source, then continuing the depositing step along the entirety of the path, and finally machining (see Figs.4-8) the side surfaces of the deposited blade material (12) by electrical discharge

machining (EDM, see column 1, lines 61-65 and column 3, lines 50-61), milling or grinding (see column 1, lines 61-65 and column 3, lines 50-61) to form the cutting blade (14/22/23) substantially as claimed.

The mere differences between Baker and the claimed invention reside in the form of the blade material and the type of the heat source for depositing the blade material onto the die body.

Maybon teaches the use of a laser beam (28) as a heat source for cladding. Specifically, Maybon teaches cladding a hard material onto a steel substrate (8) by heating and melting (or puddling) an area (32) of the steel substrate (8) with a laser beam (28) and applying a cladding powder (comprising tungsten carbide, see column 4, lines 55-60) onto the heated area (see column 6, lines 16-18) while continuing heating the area (32) to form a layer of deposit that is compositionally different and of greater hardness than the steel substrate (8). The cladding can be done with one single pass of the laser beam or a number of successive passes depending upon the thickness of the deposit desired (see column 6, lines 31-37). The cladding powder is fed through a feeder that is coaxial with a beam of the laser (see column 5, lines 63-65).

Therefore, it would have been obvious to one skilled in the art to modify Baker by using a well-known heat source such as Maybon's laser beam for cladding a hard material of a powder form onto the substrate (10) for the advantage of a very fine microstructure and homogeneity of the clad layer as taught by Maybon.

With respect to claims 10 and 12, the claimed range for the hardness of the die body and of the carbide-containing blade material and the percentage of the tungsten carbide in the cladding power are not patentably distinct over Baker as modified, since the blade material and the die body material selected depend more upon the blade performance criteria and the die body parameters (as evidenced by Applicant's specification on page 15 thereof) than on any inventive concept.

Regarding claim 41, Baker's machined blade material (see Fig.6, 7 or 8) is deemed to be "approximate" a trapezoid with a tip thereon or it would have been obvious to one skilled in the art to have any shape of the blade material to suite one's particular cutting needs. Further, it has been held that change in shape is an obvious matter of engineering design choice and not patentably advanced. In re Dailey, 149 USPQ 47, CCPA 1966.

3. Claims 8, 9, 11, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) and Maybon (U.S. Patent No. 5,580,472) as applied to claims 10, 13, 38 and 43 above, and further in view of Cox et al. (U.S. Patent No. 5,417,132).

Baker as modified above shows the claimed method steps of forming a cutting die except it lacks the step of heat treating the blade.

Cox et al. teach heat treating blades by use of a laser beam (see Abstract) after machining the cutting blades.

It would have been obvious to one skilled in the art to further modify Baker by providing a heat treating step after the blade is machined to harden and prolong the life of the blade as taught by Cox et al.

Remarks

It is noted claims 13-15 of this instant application as amended in the amendment filed on March 2, 2006 are substantially copied from claims 1, 2 and 4 of U.S. Patent No. 5,855,149 with further limitation of "puddle". Claims 13-15 before amended were appealed on 12-9-2002 before the Board of Patent Appeals and Interferences. A decision on appeal by the Board affirmed the examiner's rejecting of claims 13-15. Claims 13 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Maybon (U.S. Patent No. 5,580,472), and claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (U.S. Patent No. 3,952,179) in view of Maybon (U.S. Patent No. 5,580,472) and Cox et al. (U.S. Patent No. 5,417,132).

Applicant argues, at page10 of the amendment, Examiner continues to fail to address the explicit language of the claims in the statements of rejections and attempts to do so in regard to the recitation of "applying a blade material in the form of a powder to said area of said puddle while continuing said step of heating said die body for form a deposit comprising said blade material extending from said surface". Examiner disagrees. The alleged limitation has been addressed by the Examiner and can be

found on page 3 of this Office action. To further clarify Applicant's claim language "puddle", it is noted, from page 11 of Applicant's specification, the term "puddle" is defined as the laser beam 10 scanning along the die surface 13A so as to **melt or "puddle"** an area 17 in the surface 13A. Since Maybon's laser beam also **melts** an area in the surface of the substrate (see column 7, lines 47-49), it is by applicant's own definition **"puddle"** also.

Applicant further argues, at page 11 of the amendment, in Applicant's invention, the blade material is principally heated by the heat of the puddle of melted base material and largely heated "indirectly" by the laser whereas the blade material powder is "directly" heated by the laser in Maybon. In response, Applicant's alleged limitation "the blade material is principally heated by the heat of the puddle of melted base material and largely heated indirectly by the laser" has no support from the original specification, and nor is this limitation stated in any claim. Furthermore, page 11 of Applicant's specification states "To state another way, powder 16A is fed into the path while heating the path with the laser beam 10". It is clear, from this statement, the powder 16A is also "directly" heated by the laser beam 10 just as that of Maybon's. In Maybon, the powder material is applied to where the impact area is (see claim 1 of Maybon) while continuing the laser beam heating step (see Figs.5-7 of Maybon).

Applicant argues, at page 13 of the amendment, at least claims 38 and 44 recite "heating said die body with a laser to form a puddle of melted die body material in an area in the surface of said die body along a path corresponding to said pattern" and

"applying a blade material in the form of a powder to said area of said puddle while continuing said step of heating said die body" and thus the area being heated and the area receiving the powdered blade material at any given time in accordance with the invention are not the same whereas, in Maybon, the area receiving the powder must be the same as (or within) the area being heated by the laser in order for the laser to complete the melting of the powder. In response to Applicant's argument, "the alleged area being heated and the area receiving the powdered blade material at any given time are not the same" has no support from the original specification. Further, as shown in Applicant's Fig.2, the area (17) being heated (with the laser head 10) and the area receiving the powdered blade material (from the powder feeder 16) are indeed the **SAME** area (i.e. area 17 as shown in Applicant's Fig.2). The alleged claim language in claims 38 and 44 does not explicitly claim the two areas being different; it merely requires "heating said die body with a laser to form a puddle of melted die body material in an area in the surface of said die body along a path corresponding to said pattern" and "applying a blade material in the form of a powder to said area of said puddle while continuing said step of heating said die body". Maybon clearly shows such limitation (see Figs.5-7).

Applicant argues, at page 14 of the amendment, Examiner's previous comments are silent in regard to the location to which the powdered material is applied. Applicant's attention is directed to page 3 of this Office action. Specifically, the powdered material (comprising tungsten carbide, see column 4, lines 55-60) is applied

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to the heated area (see column 6, lines 16-18) while continuing heating the area (32) to form a layer of deposit that is compositionally different and of greater hardness than the steel substrate (8). In response to Applicant's argument with respect to "substantially half elliptical deposit" (as in claims 39 and 44) and "a deposit in a near net shape" (as in claim 42), Maybon's deposit (58, see Fig.5) meets the claim limitations of "substantially half elliptical deposit" and "in a near net shape".

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwei-Siu C. Payer whose telephone number is 571-272-4511. The examiner can normally be reached on Monday through Friday, 7:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for official communications and 571-273-4511 for proposed amendments.

H Payer
November 14, 2006


Hwei-Siu Payer
Primary Examiner